

## METHOD AND APPARATUS FOR ASSEMBLING STONES IN JEWELRY

### BACKGROUND OF THE INVENTION

The present invention relates to a new and novel method and apparatus for setting precious stones in jewelry rings or the like and is especially adapted to setting stones in round structural elements such as rings, bracelets, earrings, etc.

Stone setting is a highly-skilled art. In fine jewelry, precious and non-precious stones are often set in prongs formed in the jewelry. Skilled workers are required to perform such setting operations, and sometimes such stones can be damaged. Since labor is an expensive element in the manufacture of jewelry, various approaches have been employed to simplify the assembly of jewelry, especially fine jewelry employing precious and non-precious stones.

In the conventional prior practice, each stone is mounted in its own housing or prong setting. If two or more stones are to be connected, then mountings are linked in an article of jewelry.

An object of this invention is to provide an improved method of assembling colored, precious and semi-precious stones in gold and silver jewelry.

Another object of this invention is to simplify the assembly procedure so as to utilize workers of lower skill.

Yet another object of this invention is to provide such an apparatus and method which reduces the cost of assembly of gold and silver jewelry.

Other objects, advantages and features of this invention will become more apparent from the following description.

### SUMMARY OF THE INVENTION

In accordance with the principles of this invention, precious and non-precious stones are set in round jewelry such as rings, earrings and the like by providing apertures in the surface of the jewelry onto which the stones are placed. The size of the apertures is smaller than the stone so that the stone nests in the aperture. The ring or jewelry structure located between the apertures provides a bearing surface and assembly members are pushed on top of each stone to create a downward pressure on the stones. Each assembly member comprises a projecting pin which passes through a corresponding small hole near the respective apertures. Cold soldering is employed to secure the projecting pin in place, thereby securing each stone in place in the jewelry. Different structural forms and shapes for the holding members are provided, and different stone shapes can be accommodated.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view of the elements of the present invention prior to assembly.

FIG. 2 is a side view of a channel member and corresponding tube into which the channel member is located to secure the same to the jewelry ring.

FIG. 3 is a sectional view taken along lines 3—3 of the ring of FIG. 1 with some of the elements already mounted in position;

FIG. 4 is another perspective view illustrating additional stones set in place pursuant to the method and apparatus of FIGS. 1 through 3.

FIG. 5 is an exploded perspective view of another embodiment of the present invention with a different type jewelry ring, different stones and different assembly members.

FIG. 6 is a view of the assembly member and corresponding connectors used to assemble the stone as in FIG. 5.

FIG. 7 is another exploded perspective view illustrating the first and second of said stones being attached to a ring in accordance with the method and apparatus of this invention.

FIG. 8 is a partial side sectional view along lines 8—8 of FIG. 7 with some of the elements already mounted in position;

FIG. 9 is a view similar to FIG. 8 showing the process of attaching stones to the ring.

#### DETAILED DESCRIPTION

FIGS. 1 through 4 illustrate a first embodiment of the present invention in which stones 10, preferably oval are secured to a ring 12 by assembly members 14. Each assembly member 14 resembles a tack and comprises a rounded semi-spherical head 16 connected to a center pin 18 which provides a general mushroom shape. The head 16 has a lower annular bearing surface 20.

The ring 12 is relatively thin-walled. Apertures 20 having the approximate shape of the stones to be set therein are drilled or otherwise formed by casting in the ring structure. The size of the apertures 20 roughly corresponds to slightly less than the size of the girdle 22 of each of the stones. To attach the stones to the ring, a first stone 10 is placed in corresponding aperture 20 and a first tack 14 is placed through a small hole 26 located in the ring near adjacent aperture 20. Pin 18 fits through hole 26. The stone 10 is set in the aperture 20, and tack or assembly member 14 is pressed down on top of the stone to hold the stone in place. A sleeve or tubing 28 is slid on the pin 16 under the ring. A cold soldering or fusion welding process is employed to attach pin 16 to sleeve 28. Such tool uses cold soldering and, maybe a tool known as Tack 3 sold by ABI of 200 Jefferson Boulevard, Warwick, R.I. Cold fusion welding is a process which securely joins metal members together without the use of significant heat. By avoiding the use of significant heat in the assembly of jewelry elements, potential damage to the gemstones, gold and/or silver is avoided while the structural assembly is formed rigid.

In order to assemble three stones 10 as in FIG. 1, each of the tacks 14 is assembled sequentially one side to the other after a prior sequential tack is secured in place. Each stone is located beneath the respective annular bearing surfaces of each respective pairs of said tacks on opposite ends of the stone. The cold soldering process is illustrated in FIGS. 1-4, and the size of the tube or sleeve is small enough so that it does not interfere with the wearing of the ring. As an alternate embodiment, each hole 26 may itself terminate in a downwardly projecting angular flange or sleeve into which the respective pin would fit, so as not to eliminate the need for a separate sleeve. As illustrated in FIG. 4, the stones 10 are readily, quickly and effectively secured to the ring to provide an attractive appearance without need for expert jewelers to assemble the stones. By eliminating the conventional prong approach, significant savings in time, effort and expense is realized.

FIGS. 5 through 9 illustrate yet another embodiment of the present invention in which the assembly members have a different shape and are used to secure octagon stones to a ring.

FIG. 5 illustrates a ring 50 having a head portion 51 adapted to receive three stones 52 between four assembly points 54. Each stone is an octagon and three recesses or apertures 56 are formed in the head of the ring 50. The assembly or connecting members 58 comprise pairs of

2. A combination as set forth in claim 1, wherein said item of jewelry is a ring.